STORM WATER MANAGEMENT

Storm water discharges are generated by runoff from land and impervious areas such as paved streets, parking lots, and building rooftops during rainfall and snow events. They often contain pollutants in quantities that could adversely affect water quality. Unless they contain nothing but pure rainwater, storm water discharges may require a permit. The primary method to control storm water discharges is through the use of best management practices.

Potential sources of polluted storm water runoff at parks include:

- Construction sites;
- Fertilizers, herbicides, and insecticides from landscaping activities and pesticide spraying;
- Oil, grease, and toxic chemicals from maintenance operations and storage yards;
- Sediment from construction sites, crop and forest lands, and eroding stream banks;
- Acid drainage from abandoned mines;
- Oil from leaking exploration and production wells;
- Bacteria and nutrients from animal wastes and faulty septic systems;
- Nutrients from overflowing retention ponds;
- Parking lots;
- Animal waste; and
- Solid and hazardous waste handling and storage areas, including landfills and boneyards.

Auditor's Guidelines:

Records to Review

- NPDES Permits
- NPDES Permit renewal applications (for permits that expire within 180 days)
- Discharge monitoring reports for the past year
- Diagrams or maps of sewer and storm drain layout
- Storm water pollution prevention plan
- Construction plans to determine project size

Features to Observe

- Outdoor storage and operations areas
- Construction sites
- Streams, rivers, open waterways
- Floor and sink drains
- Storm water collection points
- Discharge outfalls

Persons to Contact

- Maintenance staff
- Auto shop mechanic
- Park rangers
- Integrated Pest Management (IPM) coordinator

DEFINITIONS

Best Management Practices (BMPs): Any activities undertaken to reduce pollution by using alternative methods or materials that lessen the impact on natural resources. EPA prescribes selected BMPs for storm water management.

Conditional no exposure exclusion: Under the conditional no exposure exclusion, operators of facilities in any of the 11 categories of "storm water discharges associated with industrial activity," (except construction activities, which are addressed under the construction component of the NPDES Storm Water Program) have the opportunity to certify to a condition of "no exposure" if their industrial materials and operations are not exposed to storm water. As long as the condition of "no exposure" exists at a certified facility, the operator is excluded from NPDES storm water permit requirements.

Construction activities: Any activity that increases opportunity for runoff or erosion by disturbing land. When considering whether a construction activity is of sufficient size to be regulated, the entire project must be considered (e.g., four ½-acre sub-projects under the same funding are equivalent to one 2-acre project.)

Coverage: A facility is considered to have coverage under a storm water permit when the facility has either received a site-specific permit from a regulatory authority, or properly submitted a notice of intent to be covered under a general storm water permit.

Direct discharge: Discharge to the land or water without any treatment.

National Pollutant Discharge Elimination System (NPDES): The national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of the Clean Water Act (CWA).

Point source: Any discernible confined and discrete conveyance including but not limited to a pipe, ditch, channel, or conduit from which pollutants are or may be discharged.

Non-point source discharge: A discharge that is not traceable to a single originating point. Examples of non-point source discharges include pesticide/fertilizer runoff from agricultural fields or runoff from construction sites.

Publicly Owned Treatment Works (POTW): Local treatment facility that receives, treats and discharges wastewater, designed primarily to treat sewage, not industrial wastewaters. The POTW may be an NPS or municipally-owned/operated plant.

Storm water: Rainwater runoff, snow melt runoff, and surface runoff and drainage.

Waters of the United States: All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide. Waters of the United States include but are not limited to all interstate waters and intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds. [See 40 CFR 122.2 for the complete definition.]

LEGAL REQUIREMENTS

Federal

Clean Water Act (CWA)
The CWA is the primary federal statute regulating the protection of the nation's waters. The CWA was enacted in 1972 in response to nationwide water pollution issues and was amended in 1977 and 1987. The CWA established national programs for the prevention, reduction, and elimination of pollution in navigable waters and groundwater. It also set up the National Pollutant Discharge Elimination System (NPDES) Program requiring permits for discharge and treatment of wastewater and storm water. (For requirements applicable to wastewater, see the Wastewater Management EnviroCheck Sheet.)

The NPDES Program establishes an effluent permit system for point source (e.g., pipe, ditch) discharges into navigable waters. The storm water program, within the NPDES Program, is designed to prevent the discharge of contaminated storm water into navigable waters. Storm water program requirements address permit applications, regulatory guidance, and treatment requirements (CWA §402).

If any park operations (e.g., maintenance activities, landscaping activities, waste collection) are exposed to storm water, permitting requirements may apply.

CWA Amendments (amended in 1987) Section 319
Section 319 requires states to develop plans to identify and control non-point source water pollution. All states have EPA-approved non-point source assessment reports and management programs.

State and Local

Each state is required under the CWA to assess all state waters affected by non-point source water pollution and to implement best management practices to reduce pollution.

Storm water pollution prevention requirements for construction projects may be implemented by local government construction ordinances. These ordinances may specify sediment and erosion controls.

Local governments may also implement requirements for facilities discharging to local government operated storm water systems.

COMPLIANCE REQUIREMENTS

Storm water discharges are generated by runoff from land and impervious areas such as paved streets, parking lots, and building rooftops during rainfall and snow events. They often contain pollutants in quantities that could adversely affect water quality. Most storm water discharges are considered point sources and require coverage by an NPDES permit. The primary method to control storm water discharges is through the use of best management practices.

Regulated storm water discharges of potential relevance to park operations include:

- Industrial activities; and
- Construction activities.

Industrial Activities

Activities that take place at industrial facilities, such as material handling and storage, are often exposed to storm water. The runoff from these activities discharges industrial pollutants into nearby storm sewer systems and water bodies. This may adversely impact water quality.

To limit pollutants in storm water discharges from industrial facilities, the NPDES Phase I Storm Water Program includes an industrial storm water permitting component. Operators of industrial facilities included in one of the 11 categories of "storm water discharges associated with industrial activity" (40 CFR 122.26 (b)(14)(i)-(xi)) that discharge storm water to a municipal separate storm sewer system (MS4) or directly to waters of the United States require authorization under a NPDES industrial storm water permit. If an industrial facility has a Standard Industrial Classification (SIC) code or meets the narrative description listed in the 11 categories, the facility operator must determine if the facility is eligible for coverage under a general or an individual NPDES industrial storm water permit. (NOTE: Each of the 11 SIC categories includes many subcategories of operations in which an NPS facility may fall. For a complete list see the EPA's Office of Wastewater Management website at <http://cfpub1.epa.gov/npdes/stormwater/swcats.cfm?program_id=6>, particularly Light Industrial Activity or Construction Activity). In some cases, a facility operator may be eligible for a conditional/temporary exclusion from permitting requirements.

Conditional No Exposure Exclusion
Under the conditional no exposure exclusion, operators of industrial facilities in any of the 11 categories of "storm water discharges associated with industrial activity," (except construction activities, which are addressed under the construction component of the NPDES Storm Water Program) have the opportunity to certify to a condition of "no exposure" if their industrial materials and operations are not exposed to storm water. As long as the condition of "no exposure" exists at a certified facility, the operator is excluded from NPDES industrial storm water permit requirements. The conditional no exposure exclusion replaces the no exposure exemption described under the Phase I Storm Water Program.

Construction Activities

Storm water runoff from construction activities can have a significant impact on water quality, contributing sediment and other pollutants exposed at construction sites. The NPDES Storm Water Program requires operators of both large and small construction sites to obtain authorization to discharge storm water under a NPDES construction storm water permit. In 1990, the Phase I Storm Water regulations addressed construction activities that disturbed five or more acres of land as part of the definition of "storm water discharges associated with industrial activity" (40 CFR 122.26(b)(14)(x)). The NPDES Storm Water Program also addresses small construction activities -- those that disturb between one and five acres of land - with the signing of the Phase II Final Rule.

For both the Phase I and Phase II Rules, the size threshold is based on the size of the "common plan of development or sale." As such, owners/operators of sites less than 5 acres (Phase I) or 1 acre (Phase II) may still need permit coverage if that activity is part of a larger common plan of development or sale that is greater than 5 acres (Phase I) or 1 acre (Phase II).

The development and implementation of storm water pollution prevention plans is the focus of NPDES storm water permits for large and small construction activities. Operators of large and small construction activities must obtain coverage under a NPDES construction storm water permit. Where EPA is the NPDES permitting authority, general permits are the only permit option available. There is a general permit for large construction activities and there will be a general permit for small construction activities in December 2002. In areas where EPA is not the NPDES

permitting authority, other types of construction storm water permits may be required; check with the appropriate permitting authority.

MISCELLANEOUS STORM WATER ISSUES

Sensitive Areas/Species

Because many NPS facilities are located within ecologically sensitive areas, park operations, which may impact the area, must be identified and pollution reduction policies must be implemented to protect these areas. Typically, stream valleys and wetlands contain sensitive species and are sensitive habitats. Discharges into these areas should be monitored for increases in pollutants, temperature, erosion, sedimentation, and other factors. The results should be compared with ecological risk thresholds that are being developed by the EPA.

EPA Watershed Approach

The EPA has developed an Index of Watershed Indicators that rates the water quality within a watershed to determine the health of the water resources. The information is broken down by subwatershed and includes 15 indicators that determine the vulnerability and condition of the overall watershed being studied.

Objectives of the watershed approach are to:

- Develop a descriptive technique to characterize the condition and vulnerability of water resources;
- Inform the public;
- Help water quality professionals set priorities on environmental programs; and
- Establish a national baseline on water resource conditions.

Based on this approach, EPA and state regulatory agencies may develop area-specific requirements that cross state lines.

POLLUTION PREVENTION

- Use green products (e.g., biodegradable antifreeze, phosphorus-free detergents).
- Keep litter, animal wastes, leaves, and debris out of storm drains.
- Check weather forecasts prior to applying pesticides or herbicides (i.e., do not apply if rain is forecasted), and apply according to directions.
- Clean up spilled brake fluid, oil, grease, and antifreeze. Do not hose them into the street where they can eventually reach local streams and lakes.
- Control soil erosion by planting groundcover and stabilizing erosion-prone areas.
- Periodically review construction erosion/sediment control practices of contractors.
- Manage animal waste on agricultural lands to minimize contamination of surface water and groundwater.
- Use planned grazing systems on pasture and rangeland.
- Properly dispose of pesticides, chemical containers, and rinsate.

SUCCESS STORIES

Since 1990, Best Management Practices have been used to reduce the quantity of nutrients entering the Chesapeake Bay from the state of Maryland. One particular watershed, dominated by agricultural land, suffered from excessive nutrient and sediment loads that washed into the Chesapeake Bay. Using nutrient BMPs, specialists worked with farmers and developed a nutrient budget based on the existing level of nutrients in the soil and applied to crops. A baseline water quality threshold was also established. Through implementation of BMPs, nitrogen levels fell by 27.7 pounds per acre in 1991 and 1992. Other positive changes have also occurred in the watershed to improve overall water quality of the Chesapeake Bay.

EPA's website provides other success stories www.epa.gov/OWOW/NPS/Success319/.

FOR MORE INFORMATION

- EPA Office of Water—Office of Wastewater Management, Storm Water Program home page <http://cfpub.epa.gov/npdes/home.cfm?program_id=6>.
- Office of Wastewater Management, Storm Water - Frequently Asked Questions, <http://cfpub.epa.gov/npdes/faqs.cfm?program_id=6>
- List of links to state and local storm water program authorities:
  State - <http://cfpub.epa.gov/npdes/linkresult.cfm?program_id=6&link_category=2&view=link>
  Local - <http://cfpub.epa.gov/npdes/linkresult.cfm?program_id=6&link_category=3&view=link>

CHECKLIST ITEM	PRIORITY	NOTES
1. The proper permitting authority (the state or EPA) has been contacted to determine if activities or facilities at the park that are exposed to precipitation trigger storm water permit requirements. Activities include, but are not limited to: • Vehicle maintenance (e.g., fueling, washing or repair); • Wastewater treatment; • Waste (e.g., uncovered dumpsters, saw dust, scrap equipment); • Parking lots; or • Steam or coal-fired boilers. [BMP]	3	
2. A permit application has been submitted to the proper permitting authority for storm water discharges associated with industrial activity and storm water discharges associated with construction activity (see discussion of those activities that trigger permitting on page 4, above). [40 CFR 122.26(c)]	2	
3. An application was been submitted for park activities requiring a storm water permit at least 90 days prior to commencement of those activities. [40 CFR 122.21(c)]	2	
4. If the facility has a storm water permit, all potential sources of storm water discharges were properly identified in the application. [40 CFR 122.21(f)] NOTE: Sources of storm water discharges	2	
5. If the facility has a storm water permit, all provisions of the permit have been implemented, including a Pollution Prevention Plan. [Permit requirements] (NOTE: Auditor should thoroughly review each permit item and cite specific sections.)	2	
6. There are no noticeable (from auditor observations, park employee observations, or records) discharges or impacts to the environment (e.g., erosion, staining, brownish foaming by outfalls) from storm water pollution. [BMP]	3	
7. If a facility has **no** storm water permit, or asserts it meets the conditional exclusion of "no exposure," all potential storm water pollutants are stored inside or under a roof such that they do not come in contact with rainwater, either directly or through runoff (run on or runoff). Potential storm water pollutants may include, but are not limited to: • Animal waste from stables or campground operations; • Facility maintenance activities (i.e., painting or paint scraping); • Pesticide storage; • Storage or use of oils and solvents; • Auto maintenance activities; • Fueling operations; • Storage of salvage materials; and • Storage of batteries. [40 CFR 122.26(g)]	2	
8. The park has taken advantage of opportunities to partner with concessioners or other onsite contract operations to prevent/control storm water contamination. [BMP]		

CHECKLIST ITEM	PRIORITY	NOTES
Specific Park Operations		
9. BMPs implemented for construction activities including the following: • Minimizing land disturbance as much as practical; • Preserving natural vegetation; • Good housekeeping; • Erosion controls including mulch, grass, or stockpile covers; and • Sediment controls including silt fences, inlet protection, check dams, stabilizing construction entrances, or sediment traps. [BMP, unless permit is required, or otherwise required by state.]	1, 2,or 3	

** Where multiple priorities are listed, auditor should use the criteria found in the NPS Audit Program Operating Guide section on writing audit findings to determine the appropriate priority. As a reminder, priority 1 findings are those with an actual or potential immediate impact on human health and the environment; priority 2 are regulatory requirements that are not priority 1; priority 3 are areas not required by regulation.*